CLAIMS

1. An agent for promoting HGF production comprising, as an effective ingredient, a disaccharide comprised of an uronic acid residue (wherein an uronic acid means an iduronic acid or a glucuronic acid, and has the same meaning hereinafter) and a glucosamine residue that are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or tri- to hexadeca-saccharides having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein at least one hydroxy group of the uronic acid residue(s) and/or the glucosamine residue(s) may be sulfated, alkylated, acylated or aminated, and/or amino group at position 2 of at least one of the glucosamine residue(s) may be sulfated, alkylated or acylated, or a salt thereof.

2. The agent for promoting HGF production according to claim 1, wherein the hydroxy group at position 2 of at least one of the uronic acid residue(s) and/or the hydroxy group at positions 3 and/or 6 of at least one of the glucosamine residue(s) may be sulfated.

3. The agent for promoting HGF production according to claim 1 or 2, wherein the hydroxy group at position 6 and/or the amino group at position 2 of at least one of the glucosamine residue(s) is sulfated.

4. The agent for promoting HGF production according to any one

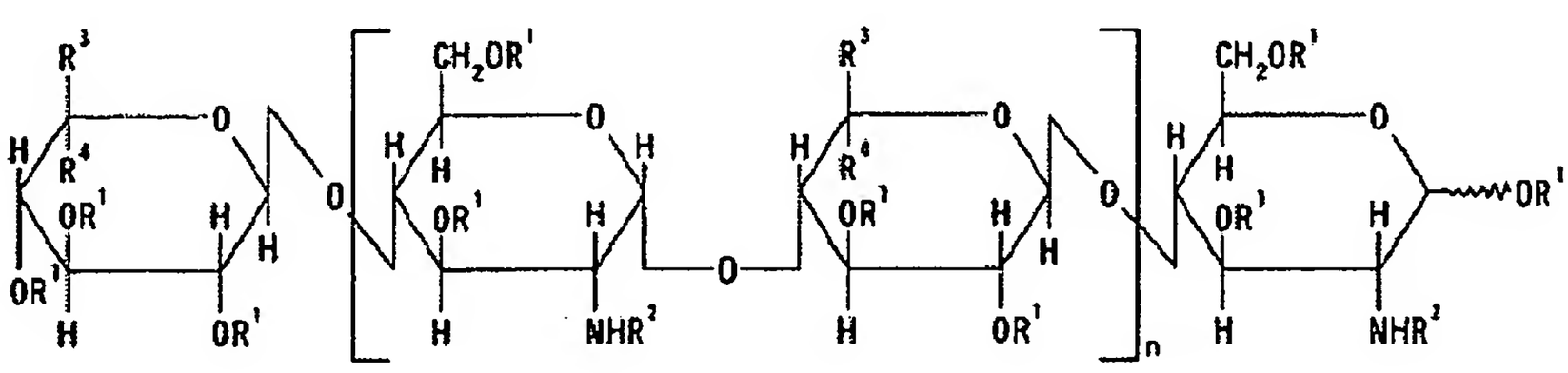
of claims 1 to 3, wherein the oligosaccharide is di- to deca-saccharide.

5. The agent for promoting HGF production according to any one of claims 1 to 4, wherein the oligosaccharide is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by digestion with heparinase or heparitinase.

6. The agent for promoting HGF production according to any one of claims 1 to 4, wherein the oligosaccharide is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by digestion by any one of nitrous acid degradation, hydrogen peroxide degradation or β-elimination.

7. The agent for promoting HGF production according to claim 1, wherein the oligosaccharide is any one of compounds represented by the following (a) to (h);

(a) formula (I):

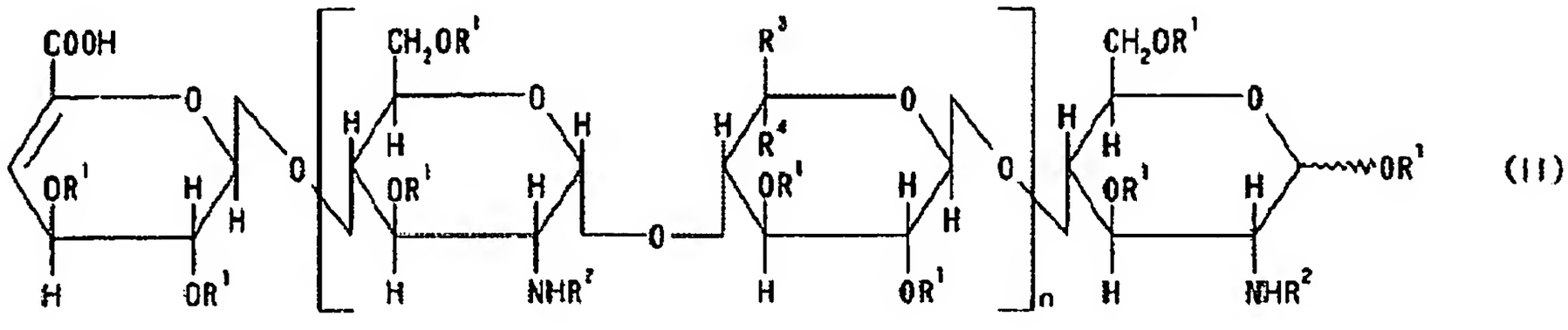


(I)

wherein R^1 represents hydrogen, sulfate group, alkyl, acyl, or optionally substituted amino group, R^2 represents hydrogen, sulfate group, alkyl or acyl group, R^3 and R^4 are different from each other and represent hydrogen or optionally substituted

carboxyl group, and n represents 0 to 7,

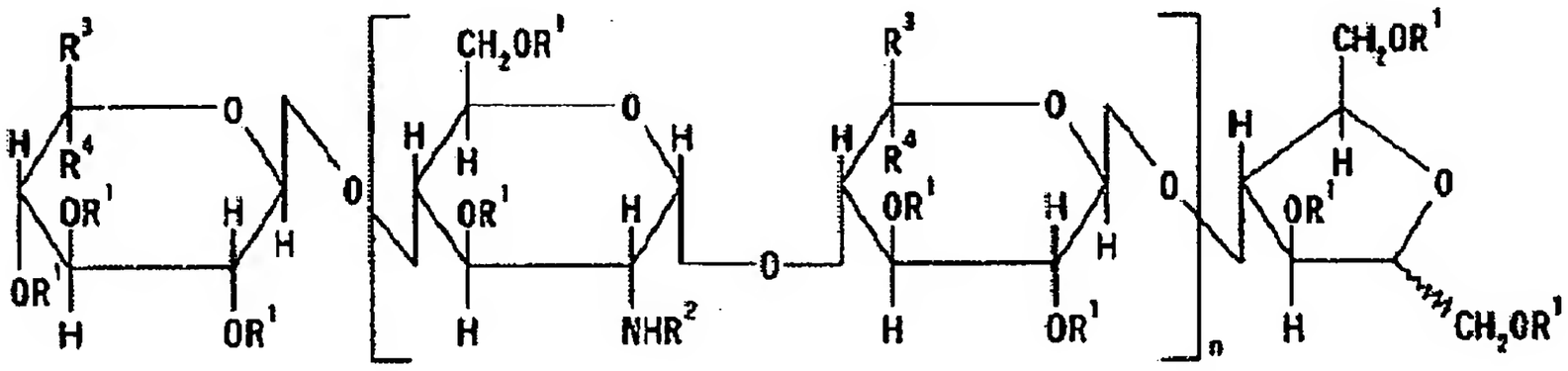
(b) formula (II):



(II)

wherein all the symbols are respectively the same as defined above,

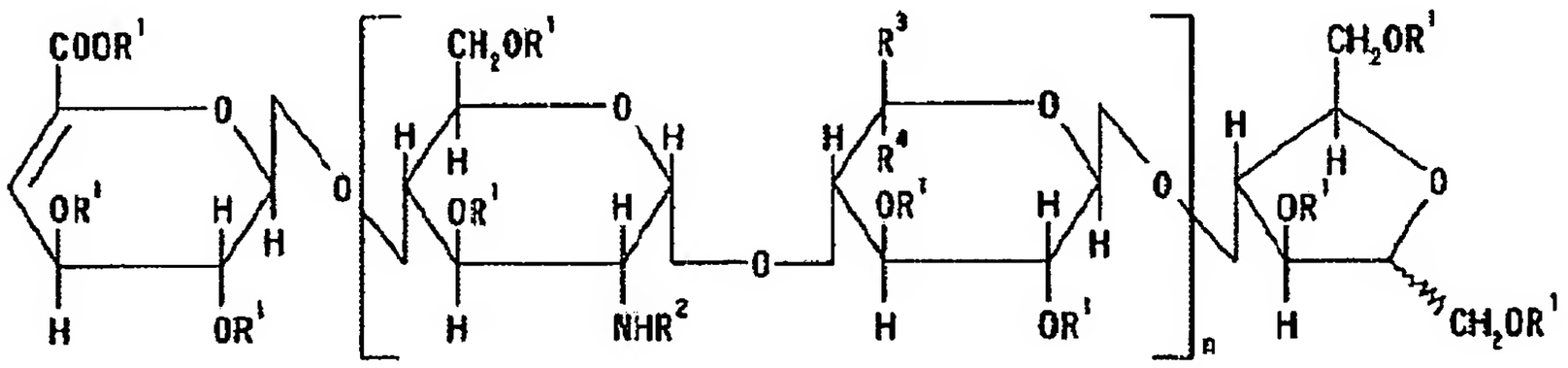
(c) formula (III):



(III)

wherein all the symbols are respectively the same as defined above,

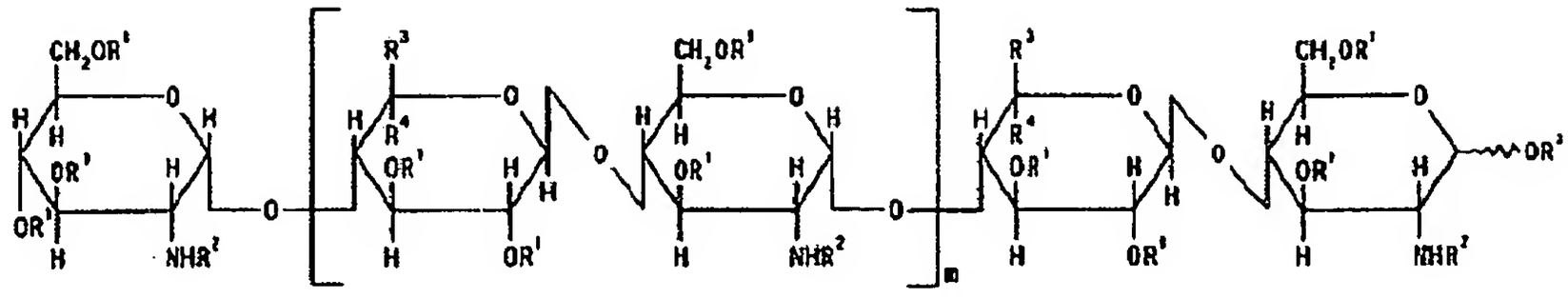
(d) formula (IV):



(IV)

wherein all the symbols are respectively the same as defined above,

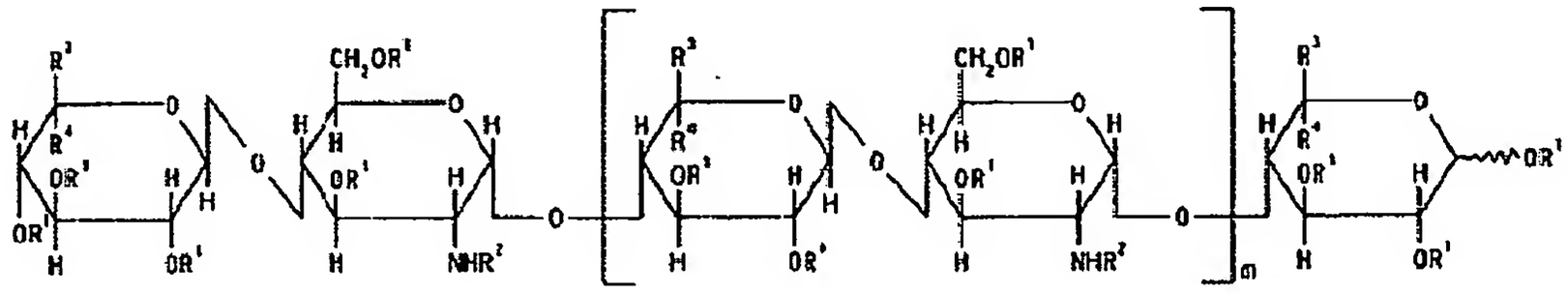
(e) formula (V):



(V)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above,

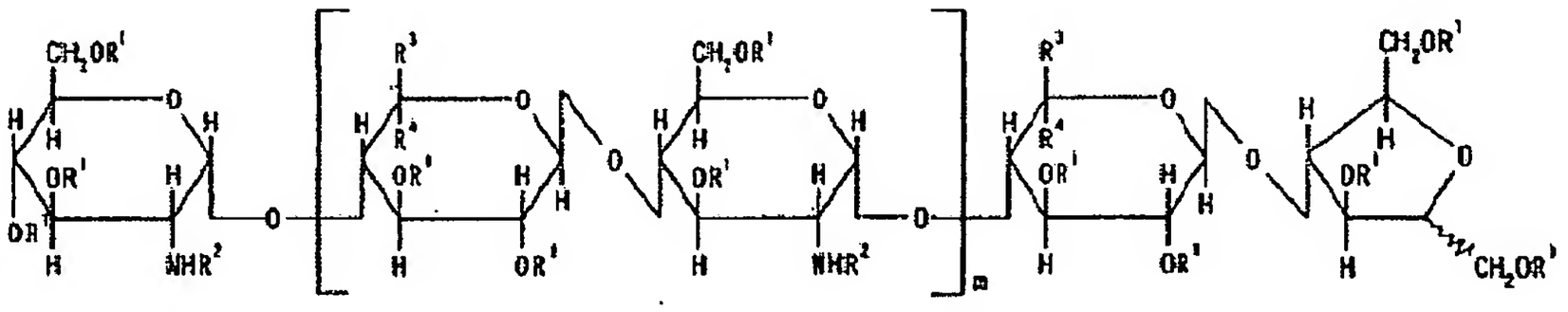
(f) formula (VI):



(VI)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above,

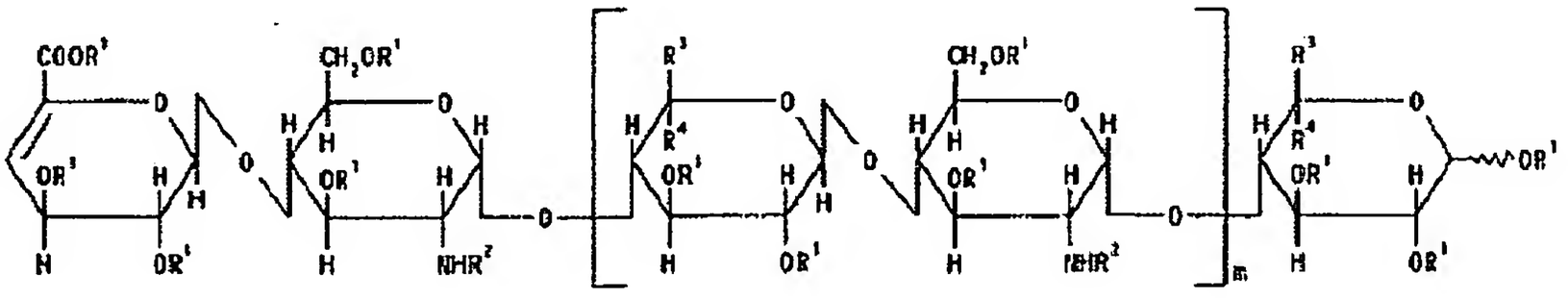
(g) formula (VII)



(VII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above, and

(h) formula (VIII)



(VIII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above.

8. An agent for promoting HGF production comprising, as an

effective ingredient, a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein the hydroxy group at position 6 of at least one of the glucosamine residue(s) is sulfated, or a salt thereof.

9. An agent for promoting HGF production comprising, as an effective ingredient, a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein the amino group at position 2 of at least one of the glucosamine residue(s) is sulfated, or a salt thereof.

10. An agent for promoting HGF production comprising, as an effective ingredient, a disaccharide compound comprised of an uronic acid residue and a glucosamine residue wherein the hydroxy group at position 6 of the glucosamine residue and/or the amino group at position 2 of the glucosamine residue are/is sulfated are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or a salt thereof.

11. The agent for promoting HGF production according to any one of claims 1 to 10, wherein the sugar chain compound or a salt thereof has no or reduced anti-blood coagulation activity and/or lipoprotein lipase releasing activity.

12. A method of promoting HGF production characterized by

administering to a mammal an effective amount of a disaccharide composed of an uronic acid residue (wherein an uronic acid means an iduronic acid or a glucuronic acid, and has the same meaning hereinafter) and a glucosamine residue that are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or tri- to hexadeca-saccharides having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein at least one hydroxy group of the uronic acid residue(s) and/or the glucosamine residue(s) may be sulfated, alkylated, acylated or aminated, and/or the amino group at position 2 of at least one of the glucosamine residue(s) may be sulfated, alkylated or acylated, or a salt.

13. The method of promoting HGF production according to claim 12, wherein the hydroxy group at position 2 of at least one of the uronic acid residue(s) and/or the hydroxy group at positions 3 and/or 6 of at least one of the glucosamine residue(s) may be sulfated.

14. The method of promoting HGF production according to claim 12, wherein the hydroxy group at position 6 and/or the amino group at position 2 of at least one of the glucosamine residue(s) is sulfated.

15. The method of promoting HGF production according to claim 12, wherein the oligosaccharide is di- to deca-saccharide.

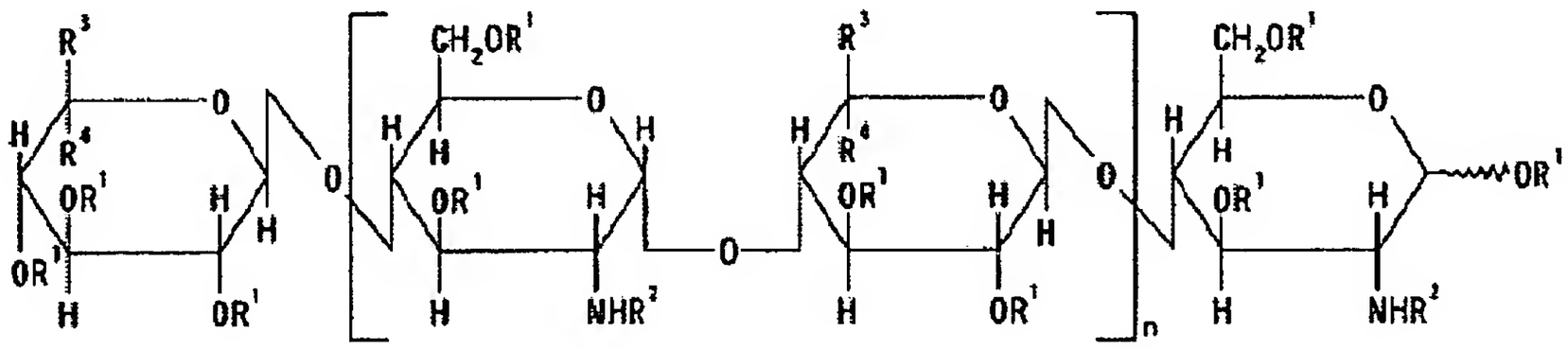
16. The method of promoting HGF production according to claim

12, wherein the oligosaccharide is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by digestion with heparinase or heparitinase.

17. The method of promoting HGF production according to claim 12, wherein the oligosaccharide is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by any one of nitrous acid degradation, hydrogen peroxide degradation or β-elimination.

18. The method of promoting HGF production according to claim 12, wherein the oligosaccharide is any one of compounds represented by the following (a) to (h);

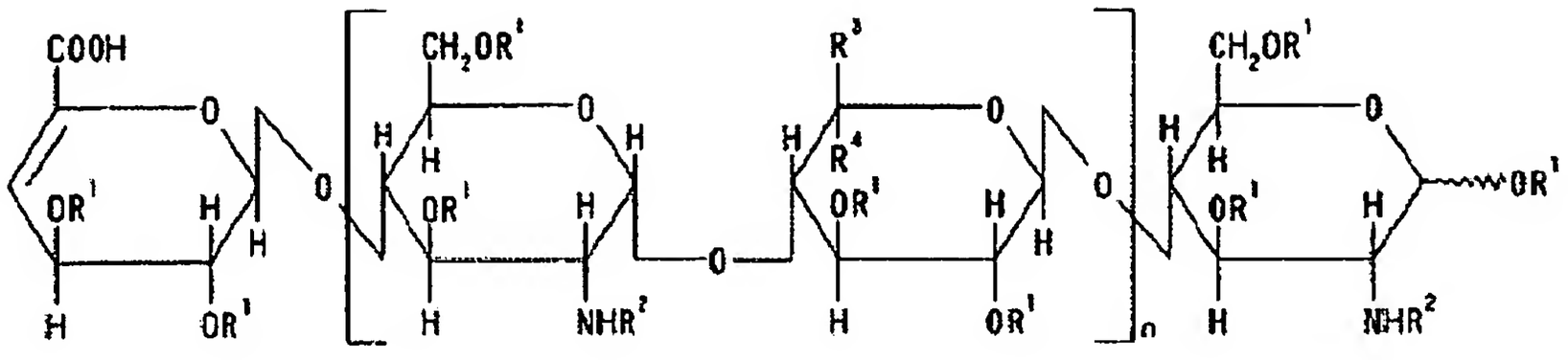
(a) formula (I):



(I)

wherein R^1 represents hydrogen, sulfate group, alkyl, acyl, or optionally substituted amino group, R^2 represents hydrogen, sulfate group, alkyl or acyl group, R^3 and R^4 are different from each other and represent hydrogen or optionally substituted carboxyl group, and n represents 0 to 7,

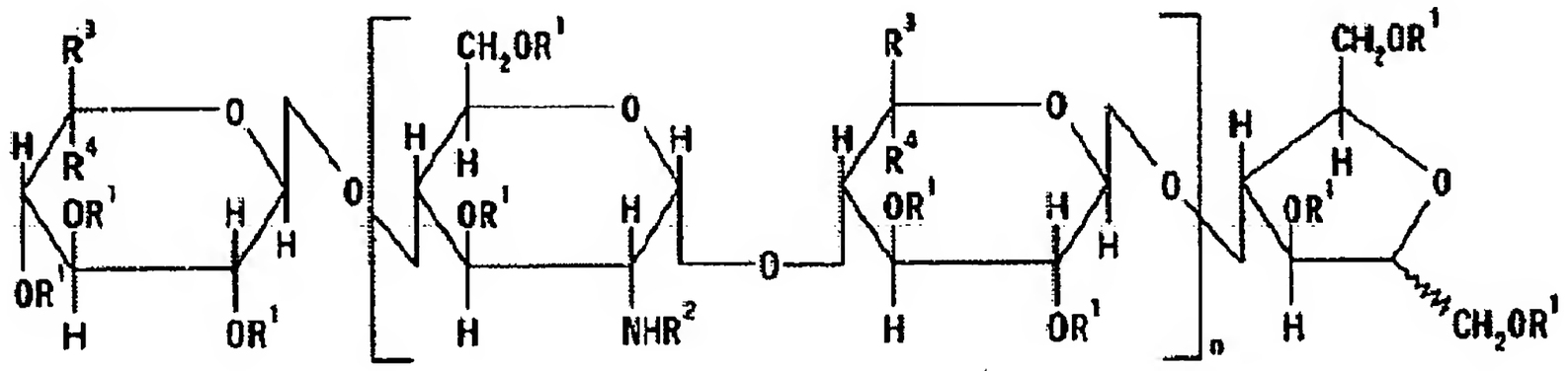
(b) formula (II):



(II)

wherein all the symbols are respectively the same as defined above,

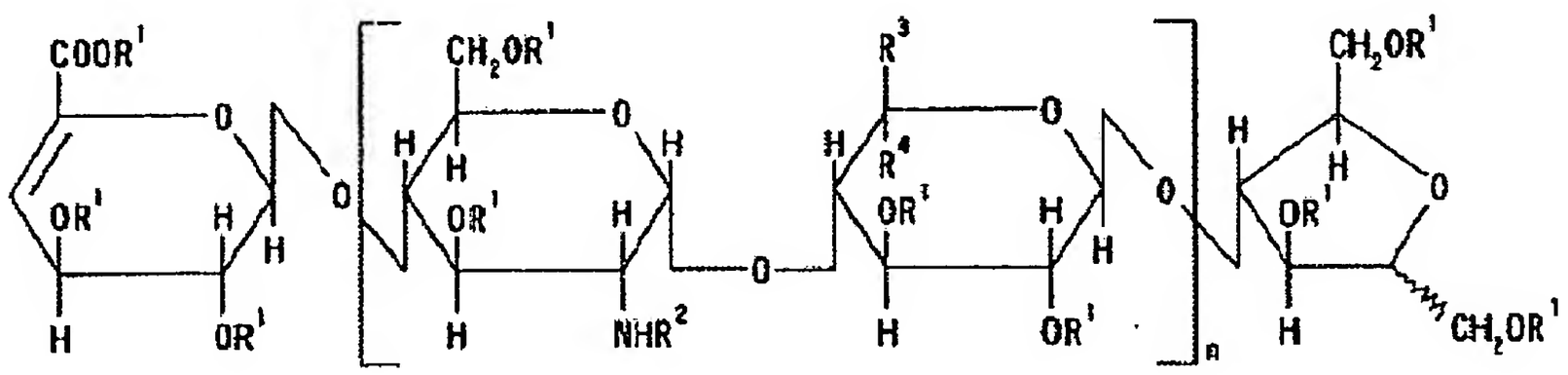
(c) formula (III):



(III)

wherein all the symbols are respectively the same as defined above,

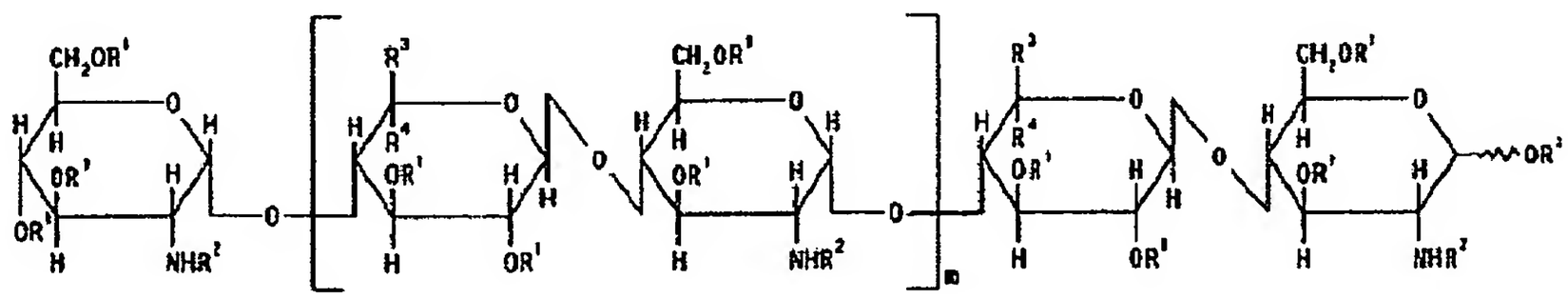
(d) formula (IV):



(IV)

wherein all the symbols are respectively the same as defined above,

(e) formula (V):

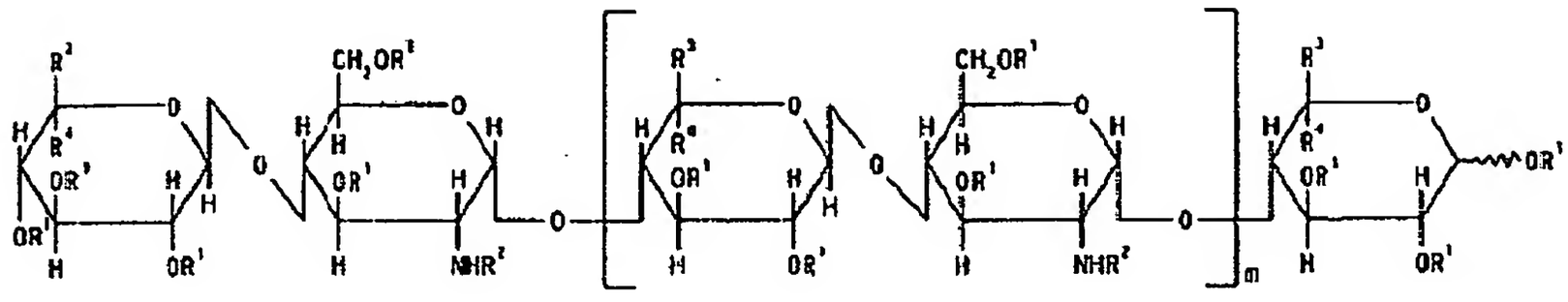


(V)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively

the same as defined above,

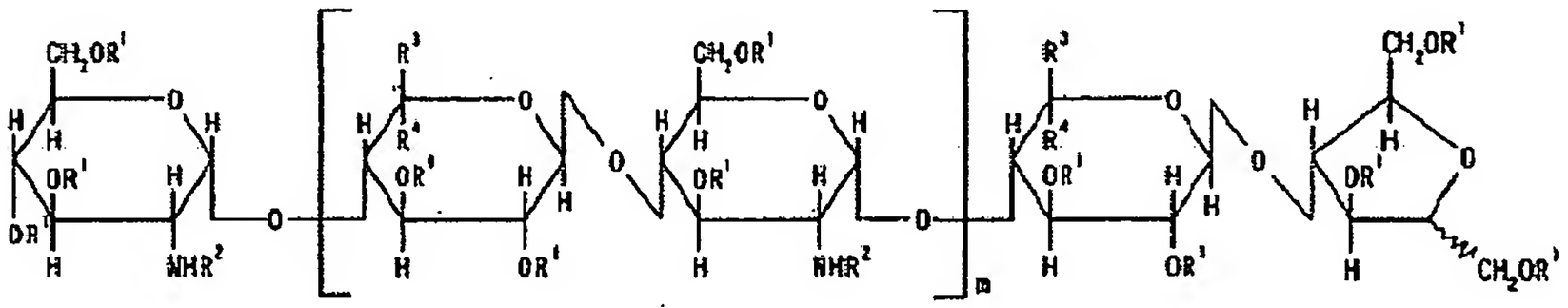
(f) formula (VI):



(VI)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above,

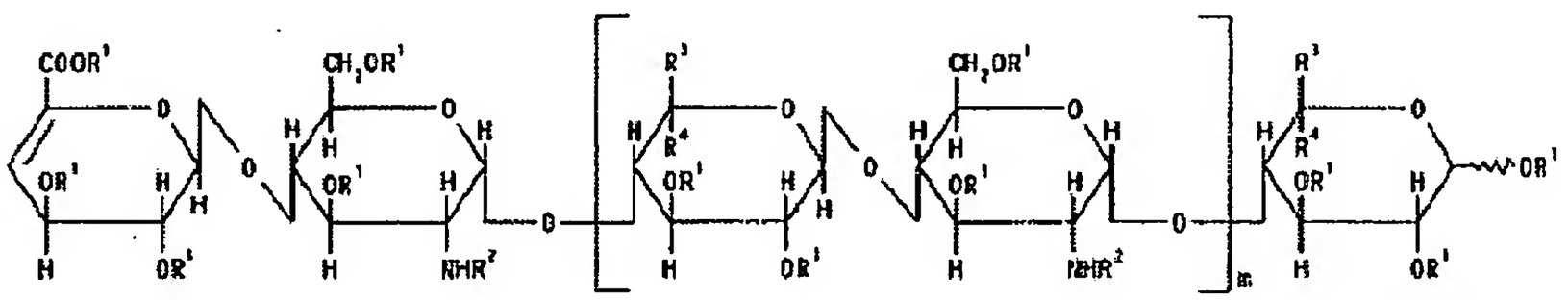
(g) formula (VII)



(VII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above, and

(h) formula (VIII)



(VIII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above.

19. A method of promoting HGF production characterized by administering to a mammal an effective amount of a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein the hydroxy group at position 6 of at least

one of the glucosamine residue(s) is sulfated, or a salt thereof.

20. A method of promoting HGF production characterized by administering to a mammal an effective amount of a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein the amino group at position 2 of at least one of the glucosamine residue(s) is sulfated, or a salt thereof.

21. A method of promoting HGF production characterized by administering to a mammal an effective amount of a disaccharide compound comprised of an uronic acid residue and a glucosamine residue in which the hydroxy group at position 6 and/or the amino group at position 2 of the glucosamine residue are/is sulfated are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or a salt thereof.

22. The method of promoting HGF production according to any one of claims 12 to 21, wherein the sugar chain compound or a salt thereof has no or reduced anti-blood coagulation activity and/or lipoprotein lipase releasing activity.

23. Use of a disaccharide composed of an uronic acid residue(wherein an uronic acid means an iduronic acid or a glucuronic acid, and has the same meaning hereinafter) and a glucosamine residue that are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or tri- to

hexadeca-saccharides having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein at least one hydroxy group of the uronic acid residue(s) and/or the glucosamine residue(s) may be sulfated, alkylated, acylated or aminated, and/or the amino group at position 2 of at least one of the glucosamine residue(s) may be sulfated, alkylated or acylated, or a salt thereof, for the production of a medicament for promoting HGF production.

24. The use according to claim 23, wherein the hydroxy group at position 2 of at least one of the uronic acid residue(s) and/or the hydroxy group at positions 3 and/or 6 of at least one of the glucosamine residue(s) may be sulfated.

25. The use according to claim 23, wherein the hydroxy group at position 6 and/or the amino group at position 2 of at least one of the glucosamine residue(s) is sulfated.

26. The use according to claim 23, wherein the oligosaccharide is di- to deca-saccharide.

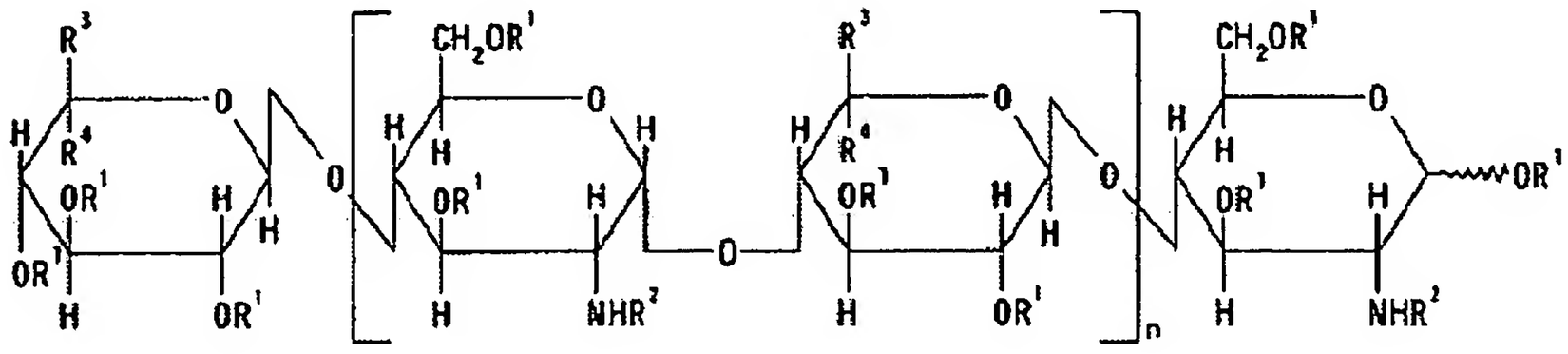
27. The use according to claim 23, wherein the oligosaccharide is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by digestion with heparinase or heparitinase.

28. The use according to claim 23, wherein the oligosaccharide

is a degradation product prepared from high-molecular-weight heparin or high-molecular-weight heparan sulfate by any one of nitrous acid degradation, hydrogen peroxide degradation or β-elimination.

29. The use according to claim 23 wherein the oligosaccharide is any one of compounds represented by the following (a) to (h);

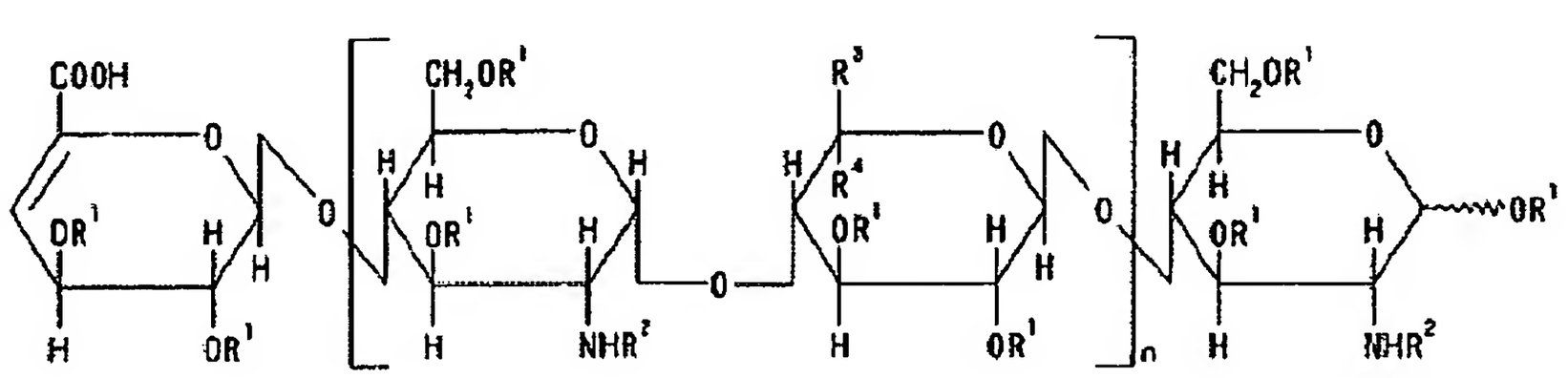
(a) formula (I):



(I)

wherein R^1 represents hydrogen, sulfate group, alkyl, acyl, or optionally substituted amino group, R^2 represents hydrogen, sulfate group, alkyl or acyl group, R^3 and R^4 are different from each other and represent hydrogen or optionally substituted carboxyl group, and n represents 0 to 7,

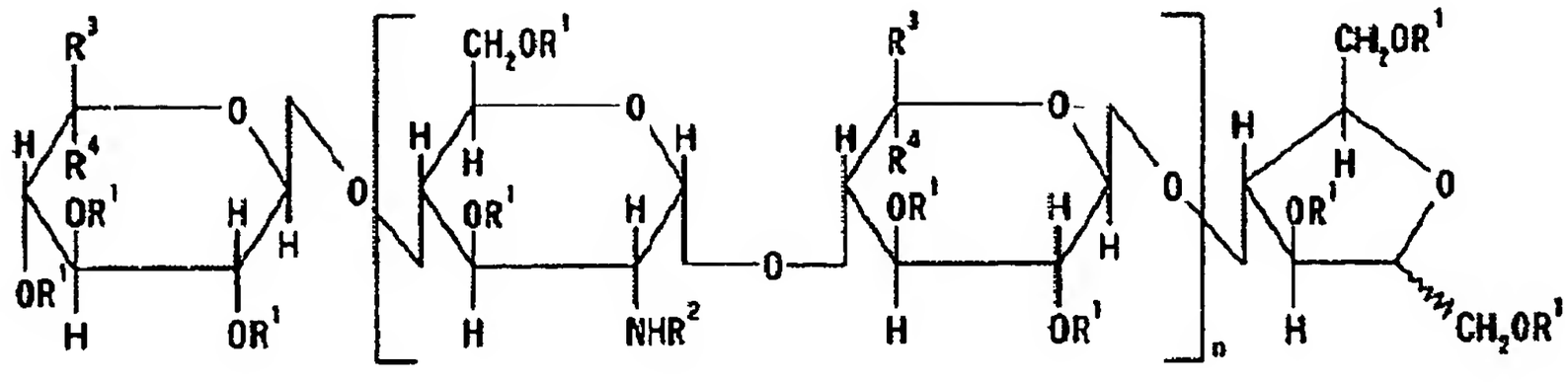
(b) formula (II):



(II)

wherein all the symbols are respectively the same as defined above,

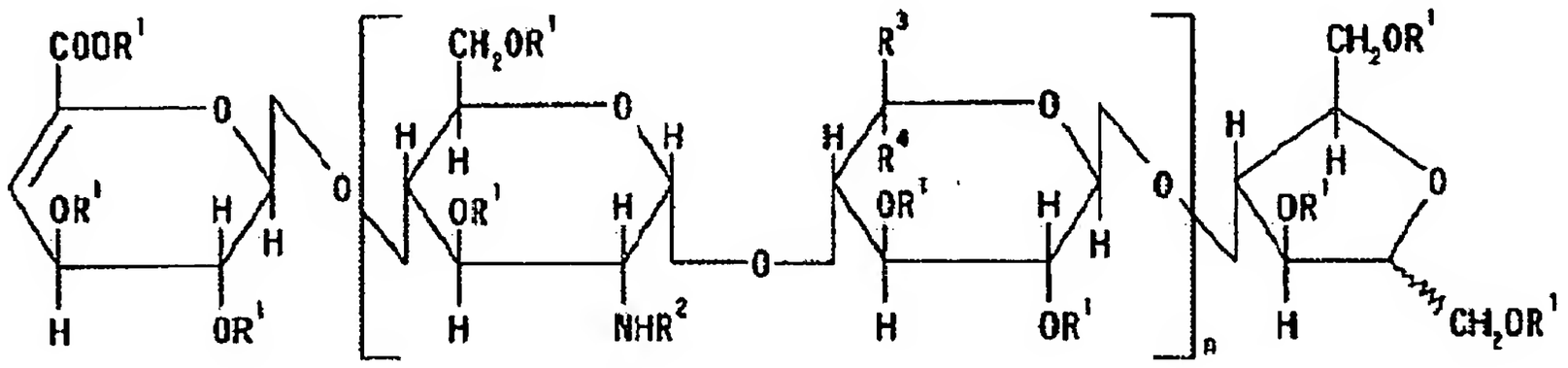
(c) formula (III):



(III)

wherein all the symbols are respectively the same as defined above,

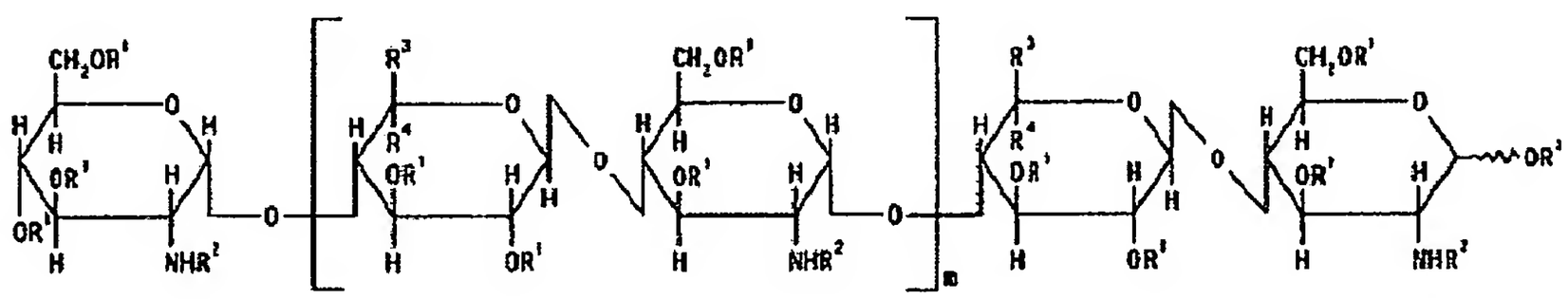
(d) formula (IV):



(IV)

wherein all the symbols are respectively the same as defined above,

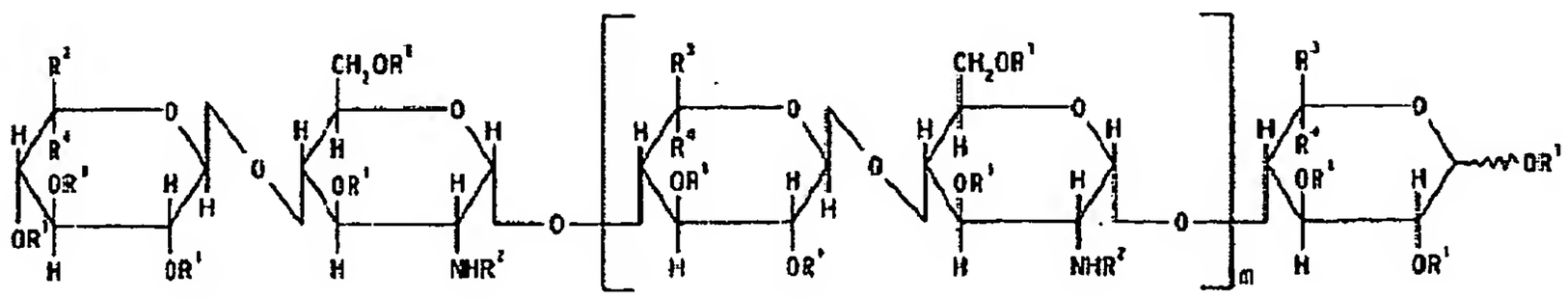
(e) formula (V):



(V)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above,

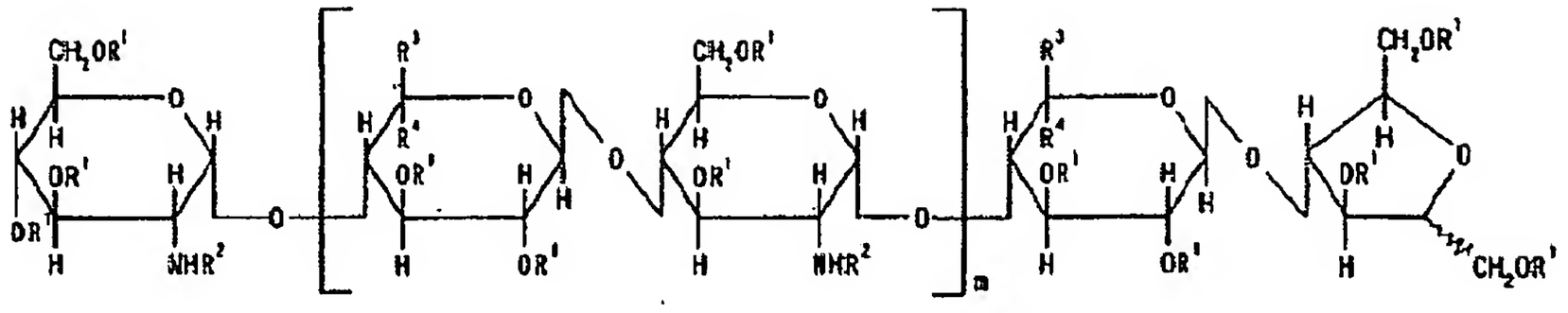
(f) formula (VI):



(VI)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above,

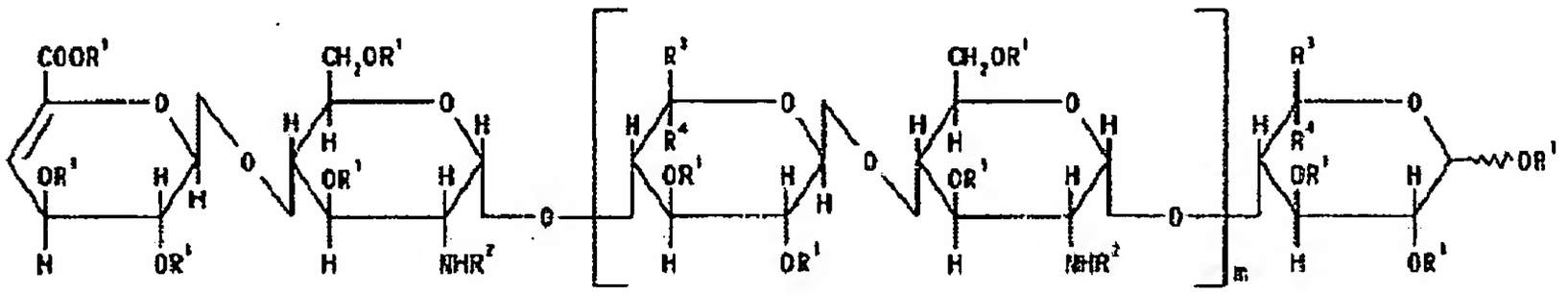
(g) formula (VII)



(VII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above, and

(h) formula (VIII)



(VIII)

wherein m represents 0 to 6, and R^1, R^2, R^3 and R^4 are respectively the same as defined above.

30. Use of a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein the hydroxy group at position 6 of at least one of the glucosamine residue(s) is sulfated, or a salt thereof, for the production of a medicament for promoting HGF production.

31. Use of a sugar chain compound having a structure in which uronic acid residue(s) and glucosamine residue(s) are alternately and repeatedly connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, wherein at least one amino group at position 2 of the glucosamine residue(s) is sulfated, or a salt thereof, for the production of a medicament for

promoting HGF production.

32. Use of a disaccharide compound comprised of an uronic acid residue and a glucosamine residue wherein the hydroxy group at position 6 and/or the amino group at position 2 of the glucosamine residue are/is sulfated are connected by α1,4-glycosidic linkage or β1,4-glycosidic linkage, or a salt thereof, for the production of a medicament for promoting HGF production.

33. The use according to any one of claims 23 to 32, wherein the sugar chain compound or a salt thereof has no or reduced anti-blood coagulation activity and/or lipoprotein lipase releasing activity.